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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,884	10/20/2000	Kenneth R. Owens	4910.00003	6113

7590 05/24/2004

Joseph P. Krause
Vedder Price Kaufman & Kammholz
222 N. LaSalle Street
Chicago, IL 60601

EXAMINER	
MATTIS, JASON E	
ART UNIT	PAPER NUMBER
2665	9

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/692,884	OWENS ET AL.	
	Examiner	Art Unit	
	Jason E Mattis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to Amendment A filed on 3/15/04. Previous claim objections to claims 1 and 10 have been withdrawn. Previous claim rejections under 35 USC § 112 to claims 5 and 13 have been withdrawn due to the amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao et al. (U.S. Application 09/318694) in view of McAllister et al. (U.S. Pat. 6697329).

With respect to claim 1, Cao et al. discloses a multi-protocol label switching system comprised of a plurality of data switches, label switching routers, that are interconnected by a plurality of data paths from a source node, LSR S, to a destination node, LSR E, through a first set of data switches, LSR A and LSR B **(See paragraph 22 and Figure 1 of Cao et al. for reference to an MPLS data network comprised of label switching routers interconnected by paths)**. Cao et al. also discloses a method within the MPLS data network of establishing a data flow over a protection path

from a source switch, LSR S, to a destination switch, LSR E, through a second set of switches, LSR C and LSR D **(See paragraph 24 and Figure 1 of Cao et al. for reference to switching to a secondary path when a primary path fails)**. Cao et al. further discloses sending a first message to establish a working data path and a protection path from a first switch, LSR S, to a second switch, LSR E **(See paragraph 23-24 and Figure 1 of Cao et al. for reference to sending a router request downstream to request an explicitly routed path between source LSR S and destination LSR E and for reference to establishing a secondary route between source LSR S and destination LSR E)**. Cao et al. does not disclose sending a second message from the second switch to the first switch establishing a reverse notification path through the network between the second and first switches. Cao et al. also does not disclose sending a third message over the reverse notification path to control protection switching by the first switch.

McAllister et al., in the field of communications, discloses sending a message establishing a reverse notification path through the network between the first and second switches **(See column 9 line 47 to column 10 line 8 of McAllister et al. for reference to using a path from a second node to a first node to send acknowledgement messages from the second node to the first node in response to protocol messages, the second message, sent from the first node)**. McAllister et al. also discloses sending a third message over the reverse notification path to control protection switching by the first switch **(See column 9 line 47 to column 10 line 8 of McAllister et al. for reference to send a an acknowledgement, a third**

message, which the first node uses to control protection switching, from the second node to the first node). Setting up a reverse notification path and sending signals over the path to a first node has the advantage of allowing a first, source, node to learn about a failure in a data path and allowing the source node to be able to implement protection switching.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of McAllister et al., to combine setting up a reverse notification path and sending signals over the path to a first node to allow the first node to control protection switching, as suggested by McAllister et al., with the MPLS protection path system of Cao et al. with the motivation being to allow a first, source, node to learn about a failure in a data path and allow the source node to be able to implement protection switching.

With respect to claim 2, Cao et al. discloses that the step of sending a first message is comprised of the step of adding a protection messaging field, which carries protection pathway information between switching elements, to a label distribution protocol message **(See column 24 and Figure 1 of Cao et al. for reference to using label distribution protocol to establish label switching paths to set up primary and protection data paths)**.

With respect to claim 4, Cao et al. discloses that the step of sending a message to establish a working path and a protection path between the first and second switches, LSR S and LSR E, includes the step of identifying at least one data switch, LSR S, as a switch element by the contents of at least one control field sent to at least one data

switch, LSR E, of the MPLS network **(See paragraph 23-24 and Figure 1 of Cao et al. for reference to LSR S using control fields sent through the network to LSR E to request an explicitly routed path identifying itself as the source LSR).**

With respect to claim 5, Cao et al. discloses that the step of sending a first predetermined message to establish a working path and a protection path between the first and second switches, LSR S and LSR E, includes the step of identifying at least one data switch as a protection switch element, LSR C and LSR D, by the contents of at least one control field sent to at least one data, switch LSR E, of the MPLS network **(See paragraphs 23-24 and Figure 1 of Cao et al. for reference to LSR S using control fields to identify LSR C and LSR D as protection switch elements and sending this control information through the network to LSR E).**

With respect to claim 7, Cao et al. discloses the working path being set up loosely **(See paragraph 2 of Cao et al. for reference to prior art using loosely connected working and protection paths set up hop-by-hop).**

With respect to claim 8, Cao et al. discloses the working path being set up explicitly **(See paragraph 21 of Cao et al. for reference to explicitly setting up working and protection routing paths).**

With respect to claim 9, Cao et al. discloses a step for mapping labels to data routed along the working path according to predetermined criteria that includes the quality of service granted to the data **(See paragraph 53 and Figure 2 of Cao et al. for reference to mapping labels routed along the first path according to**

predetermined criteria including a type of service field, which includes quality of service information).

With respect to claim 10, Cao et al. discloses a multi-protocol label switching system comprised of a plurality of data switches, label switching routers, that are interconnected by a plurality of data paths from a source node, LSR S, to a destination node, LSR E, through the data switches, LSR A and LSR B **(See paragraph 22 and Figure 1 of Cao et al. for reference to an MPLS data network comprised of label switching routers interconnected by paths).** Cao et al. also discloses a method within the MPLS data network of routing data from a working path through the network to a protection path through the network **(See paragraph 24 and Figure 1 of Cao et al. for reference to switching to a secondary path when a primary path fails).** Cao et al. further discloses sending a first control message to establish a working data path and a separate protection path from a first switch, LSR S, to a second switch, LSR E **(See paragraph 23-24 and Figure 1 of Cao et al. for reference to sending a router request downstream to request an explicitly routed path between source LSR S and destination LSR E and for reference to establishing a secondary route between source LSR S and destination LSR E).** Cao et al. does not disclose sending a second message from the second switch to the first switch establishing a reverse notification path through the network between the second and first switches. Cao et al. also does not disclose sending a third message over the reverse notification path from the second switching to the first switch, the interruption of which controls protection switching by the first switch.

McAllister et al., in the field of communications, discloses sending a message establishing a reverse notification path through the network between the first and second switches **(See column 9 line 47 to column 10 line 8 of McAllister et al. for reference to using a path from a second node to a first node to send acknowledgement messages from the second node to the first node in response to protocol messages, the second message, sent from the first node)**. McAllister et al. also discloses sending a third message over the reverse notification path the interruption of which controls protection switching by the first switch **(See column 9 line 47 to column 10 line 8 of McAllister et al. for reference to send a an acknowledgement, a third message, which the first node uses, by determining when the acknowledgement message was not received, or interrupted, to control protection switching from the second node to the first node)**. Setting up a reverse notification path and sending signals over the path to a first node has the advantage of allowing a first, source, node to learn about a failure in a data path and allowing the source node to be able to implement protection switching.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of McAllister et al., to combine setting up a reverse notification path and sending signals over the path to a first node to allow the first node to control protection switching, as suggested by McAllister et al., with the MPLS protection path system of Cao et al. with the motivation being to allow a first, source, node to learn about a failure in a data path and allow the source node to be able to implement protection switching.

With respect to claim 11, Cao et al. discloses that sending a first message is comprises adding a protection messaging field, which carries protection pathway information between switching elements, to a label distribution protocol message **(See column 24 and Figure 1 of Cao et al. for reference to using label distribution protocol to establish label switching paths to set up primary and protection data paths)**.

With respect to claim 13, Cao et al. discloses that sending a first predetermined control message from a first switch to a second switch comprises includes identifying at least one switch as a protection switch element, LSR C and LSR D, by the contents of at least one control field sent to at least one switch, LSR E **(See paragraphs 23-24 and Figure 1 of Cao et al. for reference to LSR S using control fields to identify LSR C and LSR D as protection switch elements and sending this control information through the network to LSR E)**.

With respect to claim 14, Cao et al. discloses the working path being set up loosely **(See paragraph 2 of Cao et al. for reference to prior art using loosely connected working and protection paths set up hop-by-hop)**.

With respect to claim 15, Cao et al. discloses the working path being set up explicitly **(See paragraph 21 of Cao et al. for reference to explicitly setting up working and protection routing paths)**.

With respect to claim 16, Cao et al. discloses mapping labels to data routed along the working path according to predetermined criteria that includes the quality of service granted to routed data **(See paragraph 53 and Figure 2 of Cao et al. for**

reference to mapping labels routed along the first path according to predetermined criteria including a type of service field, which includes quality of service information).

3. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coe et al. in view of McAllister et al. as applied to claims 1, 2, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, and 16 above, and further in view of Aukia et al. (U.S. Pat. 6594268).

With respect to claims 3 and 12, the combination of Cao et al. and McAllister et al. does not disclose that sending a first message is comprised of the step of adding a protection messaging field, which carries protection pathway information between switching elements, to an MPLS reservation protocol message.

Aukia et al., in the field of communications, discloses that sending a message is comprised of the step of adding a protection messaging field, which carries protection pathway information between switching elements, to an MPLS reservation protocol message **(See column 9 line 60 to column 10 line 47 and Figure 2 of Aukia et al. for reference to control messages using RSVP protocol, which are used to carry protection pathway information between network nodes).** Using an MPLS reservation protocol message to carry protection pathway information between switching elements has the advantage of being able to share protection pathway information between network elements using the current MPLS protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Aukia et al. to combine the use of an MPLS

reservation protocol message of Aukia et al. with the MPLS protection path method of Cao et al., with the motivation being to be able to share protection pathway information between network elements using the current MPLS protocol.

Response to Arguments

4. Applicant's arguments field on 3/15/04 have been fully considered but they are not persuasive.

- Examiner agrees with Applicant's argument that *"the claim rejections under §102(e) should be withdrawn after this amendment is entered"*; however, claims 1-2, 4-11, and 13-16 are still rejected using the Cao et al. reference in combination with new reference McAllister et al. as shown above. Also, the rejections to claims 3 and 12 previously made under §103(a) are also still rejected, now with Cao et al. and McAllister et al. in further view of Aukia et al.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E Mattis whose telephone number is (703) 305-8702. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jem

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600